

Claims

1. A method of measuring an air-bearing separating a rotatable surface and a flyable component comprising the steps of:

applying a deformable material to a first area of the surface, the deformable material having a first height which is greater than an anticipated air-bearing height, the first area being small in comparison to a second area where no deformable material is applied;

rotating the surface at a rate sufficient to form the air-bearing;

flying the flyable component over the second area of the surface to form the air-bearing;

impacting a selected portion of the deformable material with the flyable component to reduce the height of the selected portion of the deformable material to a height approximately equal to the height of the air-bearing; and

measuring the height of the selected portion of the deformable material.

2. The method of claim 1 wherein the deformable material is a viscoelastic lubricant.

3. The method of claim 1 wherein the deformable material is a non-functionalized perfluoropolyether lubricant.

4. The method of claim 1 wherein the deformable material has a molecular weight of approximately 10k Daltons.

5. The method of claim 1 further comprising the step of fixing the deformable material after the impacting step and prior to the measuring step.

6. The method of claim 5 wherein the step of fixing the deformable material further comprises exposing the deformable material to ultraviolet light.

7. The method of claim 1 wherein the step of measuring uses ellipsometry.

8. The method of claim 1 wherein the surface is a disk and the step of applying a deformable material further comprises placing a dot of viscoelastic material on the surface and rotating the disk at a rate sufficient to force the dot to move toward an outer diameter of the disk forming a streak of viscoelastic material.

9. The method of claim 1 wherein the step of applying a deformable material further comprises spraying small droplets over the surface as an aerosol.

10. A method of measuring a fly-height of a slider flying over a rotatable disk surface comprising the steps of:

applying a deformable material to a first area of the surface, the deformable material having a first height which is greater than an anticipated fly-height, the first area being small in comparison to a second area where no deformable material is applied;

flying the slider over the rotating disk;

impacting a selected portion of the deformable material with the slider to reduce a height of the selected portion of the deformable material to the fly-height; and

measuring the height of the selected portion of the deformable material.

11. The method of claim 10 wherein the deformable material is a viscoelastic lubricant.

12. The method of claim 10 further comprising the step of fixing the deformable material after the impacting step and prior to the measuring step.

13. The method of claim 10 wherein the step of applying a deformable material further comprises placing a dot of viscoelastic material on the surface and rotating the disk at a rate sufficient to force the dot to move toward an outer diameter of the disk forming a streak of viscoelastic material.

14. The method of claim 13 wherein the step of impacting further comprises moving the slider toward an undisturbed portion of the streak of viscoelastic material then keeping the slider at a location adjacent to the undisturbed portion for multiple rotations.

15. A method of measuring a fly-height of a slider comprising the steps of:

- applying a dot of viscoelastic material to a surface of a disk;
- rotating the disk at a first speed to force the dot to move toward an outer diameter of the disk to form a trail of viscoelastic material higher than an expected fly-height of the slider;
- loading the slider onto the disk rotating at a second speed selected for flying the slider;
- moving the slider toward an undisturbed portion of the trail of viscoelastic and holding the slider at a position adjacent to the undisturbed portion for multiple rotations to flatten a selected segment of the trail; and
- measuring the height of selected segment of the trail as the fly-height.

16. The method of claim 15 wherein the viscoelastic material is a non-functionalized perfluoropolyether lubricant.

17. The method of claim 15 wherein the trail of viscoelastic material is tens of nanometers high.